

HYPER-ARC CONSISTENCY IN A CONSTRAINT SATISFACTION NETWORK**ABSTRACT**

A method for solving a constraint satisfaction problem includes receiving a set of variables having
5 respective input domains and a set of relations among the
variables, and building a network of one or more
hyper-arcs representative of the set of relations, each
hyper-arc corresponding to one of the relations and
linking nodes in the network corresponding to the
10 variables that are subject to the relation. For each of
the hyper-arcs, the variables are assembled in a
hierarchy based on the relation corresponding to the
hyper-arc. The input domains of the variables in the
hierarchy are reduced, so as to determine respective
15 output domains of the variables that are consistent with
the relations.